

WHAT IS CLAIMED IS:

1. A oscillating internal-meshing planetary gear system, comprising; an external gear; and an internal gear of which the number of teeth is slightly different from said external gear, wherein:
- the oscillating rotation of either said external gear or said internal gear relative to the mating gear reduces a input shaft rotation and a output reduced speed is taken off from a output shaft; either said external gear or said internal gear has trochoidal tooth profile and the mating gear has circular-arc tooth profile; and a space formed between said external gear and said internal gear is filled up with a grease which contains at least a base oil having kinetic viscosity being not less than  $10 \text{ mm}^2/\text{s}$  at  $100^\circ\text{C}$  and a lithium complex thickener synthesized from adipic acid.
2. A oscillating internal-meshing planetary gear system according to claim 1, wherein the kinetic viscosity of said base oil is not less than  $50 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$ .
3. A oscillating internal-meshing planetary gear system according to claim 1, wherein the kinetic viscosity of said base oil is not less

than 100 mm<sup>2</sup>/s at 40 °C.

4. A method for improving the durability of a oscillating internal-meshing planetary gear system, said system comprising an external gear and an internal gear of which the number of teeth is slightly different from said external gear, either said external gear or said internal gear having trochoidal tooth profile and the mating gear having circular-arc tooth profile, the oscillating rotation of either said external gear or said internal gear relative to the mating gear reducing a input shaft rotation and a output reduced speed being taken off from a output shaft, said method comprising a step of filling up a space formed between said external gear and said internal gear with a grease containinng at least a base oil having kinetic viscosity not less than 10 mm<sup>2</sup>/s at 100 °C and lithium complex thickener synthesized from adipic acid.

5. A method for improving the durability of a oscillating internal-meshing planetary gear system according to claim 4, wherein the kinetic viscosity of said base oil is not less than 50 mm<sup>2</sup>/s at 40 °C.

6. A method for improving the durability of a oscillating internal-meshing planetary gear

system according to claim 4, wherein the kinetic viscosity of said base oil is not less than 100 mm<sup>2</sup>/s at 40 °C.